January/FY06

MILITARY OCEAN TERMINAL SUNNY POINT

North Carolina

Army Defense Environmental Restoration Program Installation Action Plan

Final 11 April 2006

Table of Contents

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Restoration Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC) and Military Ocean Terminal - Sunny Point, an IAP was completed. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan:

Company/Installation/Branch
Military Ocean Terminal - Sunny Point

US Army Environmental Center

Engineering & Environment, Inc for USAEC

Acronyms & Abbreviations

AEDB-R	Army Environmental Data Base-Restoration (formerly DSERTS)
BRAC	Base Realignment and Closure
CADS	Containerized Ammunition Distribution System
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CSA	Comprehensive Site Assessment
CTC	Cost-to-Complete
cy	cubic yards
DA	Department of Army
DD	Decision Document
DoD	Department of Army
ER,A	Environmental Restoration, Army (formerly DERA)
FS	Feasibility Study
ft	foot
FY	Fiscal Year
GW	Groundwater
GWT	Groundwater Treatment
HQ	Headquarters
IAP	Installation Action Plan
IMA	Installation Management Agency
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	$1,000
kg	kilograms
LTM	Long-term Management
m	meters
mg	milligrams
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MOTSU	Military Ocean Terminal - Sunny Point
MW	Monitoring Well
NC	North Carolina
NCDENR	North Carolina Department of Environment and Natural Resources
NE	Not Evaluated
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyls
POL	Petroleum, Oil & Lubricants
POM	Program Objective Memorandum (budget)
PY	prior year
RA	Remedial Action

Acronyms & Abbreviations

RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SDDC	Surface Deployment and Distribution Command
SI	Site Inspection
SPMOT	Military Ocean Terminal - Sunny Point (AEDB-R designation)
SVOC	Semi-Volatile Organic Compounds
TNT	Trinitrotoluene
TPH	Total Petroleum Hydrocarbons
ug/l	microgram per liter
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (now USACHPPM)
USATHAMA	United States Army Toxic and Hazardous Material Agency (now USAEC)
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WALT	Wilmington Ammunition Loading Terminal
yr	year

Installation Locale: As a major terminal of Military Surface Deployment and Distribution Command Military Ocean Terminal, Sunny Point (MOTSU) is nestled on the west bank of the Cape Fear River in Brunswick County in southeastern North Carolina. The town of Southport, located at the mouth of Cape Fear River, lies about 5 miles south. Twenty-five miles to the north is the city of Wilmington, NC, a major shipping point for NC State Ports Authority. The main highway entrance is at the junction of NC Highways 133 and 87. General topographic features are flat to gently rolling, with sandy plains, tidewater marshlands and cypress swamps.

Installation Mission: MOTSU's mission is to plan, coordinate, and execute the safe movement of munitions, explosives, and other hazardous cargo through common-user ammunition terminals and seaports in the United States. Personnel at MOTSU also provide technical assistance to commercial strategic seaports and expeditionary ammunition terminal operations as needed. MOTSU's mission expanded in 1997 to include the Army and Air Force Prepositioned Maintenance Program. Because of the mission of the terminal, it is not open to the general public. Safety and security requirements are stringent.

Lead Organization:
Major Command: Surface Deployment and Distribution Command (SDDC)

Lead Executing Agencies:
US Army Corps of Engineers, Savannah District
US Army Environmental Center

Regulatory Participation:
U. S. Environmental Protection Agency, Region IV
North Carolina Department of Environment and Natural Resources (NCDENR)

NPL Status:
Non-National Priority List (NPL)

RAB Status: Due to the remote location of the installation, there is no interest in establishing a RAB for the Military Ocean Terminal - Sunny Point.

Program Summaries

IRP
Contaminants of Concern: Petroleum/Oil/Lubricants (POL), Solvents
Media of Concern: Soil, Groundwater
Date for RIP/RC: 2004/2007
Funding to Date (thru FY05): $1,646K
Current year funding (FY06): $17K
CTC (FY07+): $17K

Cleanup Program Summary

Historic Activity:

As the Department of Defense's premier east coast ammunition terminal, MOTSU has provided valuable support to deployed forces throughout the world for fifty years. Up until 1944, ammunition was treated the same as any other commodity flowing through an ocean terminal. Expediency was the driving force in moving cargo and ammunition overseas. The Naval Magazine Port Chicago located in Concord Calif., was a key location for loading ammunition aboard naval ships during World War II. On July 17, 1944, two explosions occurred on a ship at berth while loading ammunition. All 320 sailors on duty were killed instantly and 390 additional people were injured. The investigation into this disaster led defense planners to recognize the requirement for safer handling procedures and terminals specifically designed to transship ammunition.

A Government Land Office was established in Southport, N.C. 15 Jan 1952 to handle the government land acquisition for MOTSU and terminal construction began. The new Military Ocean Terminal was activated as Wilmington Ammunition Loading Terminal (WALT) Nov of 1955. The terminal's name was changed to MOTSU in the 1970s.

The new terminal went to full capacity during the Cuban Missile Crisis and subsequently loaded 85% of the Department of Defense's re-supply munitions to Vietnam. MOTSU was once again called upon to operate 24 hours a day during Operation Desert Storm. More than 500MT of the munitions to the Persian Gulf were transshipped through Sunny Point.

The Department of Defense has been gradually moving to 100 percent containerization of munitions since the early 1970s and MOTSU was the Army's test bed for containerization of munitions and has been leading the way in this critical component of the distribution process. Ninety percent of the ammunition that now comes through MOTSU is containerized.

MOTSU's mission expanded in 1997 to include the Army and Air Force Prepositioned Maintenance Program. Ammunition Preposition vessels return to Sunny Point for PREPO cargo maintenance cycles, to inspect and test stocks, and reconfigure loads as required. Prepositioning afloat operations now comprise the greatest share of the workload at the terminal.

In recent years, the emphasis at MOTSU has been; upgrading operational processes, developing automated cargo management systems, and procuring installation support equipment to improve efficiency of the terminal and support the near exclusive use of containers. Operation Enduring Freedom and Iraqi Freedom exports and the recent reconstitution of the Army and Air Force Ammo Preposition Afloat programs have provided ample opportunity to practice new business processes that this new equipment supports. The terminal is continuing to posture to support the war fighters for the next 50 years.

MOTSU's sound partnership with US Army Reserve Soldiers, professional commercial transportation providers, the North Carolina State Ports Authority, stevedoring contractors, and the International Longshoremen's Association has enabled the command to safely

move in excess of 1.7 million tons of ammunition, unit equipment and supplies throughout the globe over the last several years.

The safe and efficient movement of ammunition through the terminal has been and remains the cornerstone of operations. The long-standing safety record for the terminal is attributed to command emphasis on safety and the professionalism and dedication of the MOTSU workforce.

IRP

- Prior Years Progress: Since 2004 all sites at MOTSU are either Response Complete (RC) or Remedy in Place (RIP). Seventeen sites are RC with no LTM.
- Future Plan of Action: Monitored natural attenuation (MNA) at the 18th site will continue until contaminants in groundwater are below NCDENR 2L standards. Estimated date of MNA completion is 2007.

MILITARY OCEAN TERMINAL SUNNY POINT

Installation Restoration Program

AEDB-R Sites/Sites RC: 18/17 (1 RIP with LTM)

AEDB-R Site Types:

2 Spill Site Areas	1 Fire Crash Testing Area
7 Landfills	3 Storage Areas
4 Surface Disposal Areas	1 Unexploded Munitions/Ordnance

Contaminants of Concern: Petroleum/Oil/Lubricants (POL), Solvents

Media of Concern: Groundwater, Soil

Completed REM/IRA/RA:

FY86-87 - SPMOT-06 - RA (GW Pumping System)
FY90-91 - PCB Storage Bldg - RA
FY96 - SPMOT-15 - IRA (soil and free product removal)
FY99 - SPMOT-18 - REM (soil removal)
FY04 - SPMOT-02 - FRA (soil removal)

Total IRP Funding:

Prior years (through FY05):	$ 1,646K
Current year funding (FY06):	$ 17K
Future Requirements (FY07+):	$ 17K
Total:	$ 1,680K

Duration of IRP:

Year of Inception: 1989
Year of IRP RIP/RC: 2004/2007
Year of IRP Completion (including RA(O)/LTM): 2007

IRP Contamination Assessment Overview:

Several environmental reports for the facility have been published since 1970. These documents include investigations on air pollution, water quality, entomology, sanitary engineering, pest management, botanical studies and general environmental assessments.

A water quality engineering study (USAEHA 1973) was conducted in 1972. This report presented a technical water quality assessment of first cycle maintenance dredging operations in the Cape Fear River at MOTSU. A water quality engineering consultation (USAEHA 1986) was conducted in 1986 to evaluate the operation of the maintenance support facilities that are located in the administration area and to determine their impact on local ground water quality. In 1988, a document (USAEHA 1988) was published to address the potable water sources.

In 1972, a survey was conducted to evaluate facilities and procedures concerned with the supply of potable water; the collection, treatment and disposal of liquid waste; and the collection and disposal of solid waste (Third US Army Medical Laboratory 1972). At the time of the report, the overall water, wastewater and solid waste systems were found to be well operated and maintained. In 1978, USAEHA conducted an evaluation of the domestic and industrial wastewater facilities, fuel and waste oil handling facilities and practices, and oil and hazardous substances spill contingency plans and compliance with the NPDES permits at MOTSU (USAEHA 1978).

Several environmental assessment reports were completed that provided information on potential sources of concern at MOTSU. Environmental assessments were completed in 1977 (USAEHA 1977) and 1980 (US Army 1980) to determine the existence of toxic and hazardous materials and related contamination. An environmental program review (USAEHA 1990) was completed to identify existing and potential areas of non-compliance with applicable federal, state, and local environmental regulations, and to provide recommendations for these findings, and to help improve existing environmental programs. As a result of the study, the following recommendations were made to ensure good environmental practices:

Carolina Beach Landfill: Implement a groundwater monitoring program to include at least annual sampling for metals and less frequent sampling for organics parameters.

Locomotive Shop (SPMOT-02 & SPMOT-16). Perform localized soil cleanup and re-sampling of the soil, sediment, surface water and existing groundwater monitoring wells before initiating any more thorough groundwater investigation. Contaminated soil was removed in the summer of 2004.

Lumber Yard (SPMOT-18). Perform localized soil cleanup and resample soil to confirm the achievement of state action levels for total petroleum hydrocarbons (TPH) and heavy metals. Soil removal was completed in FY99 to achieve state action levels. No further action was required.

Fire Training Area (SPMOT-17). Cleanup the stained areas of soil using the state guidelines for oil-contaminated soils. Collect samples after soil cleanup to ensure state action levels for TPH and heavy metals have been achieved. Sampling confirmed that the site did not exceed state action levels, and no further action was required.

Former Dow Chemical Plant (SPMOT-05). Take steps to reduce the safety hazards and liability associated with the former plant site such as restricting public access, posting signs, and dismantling the remains of the foundation to adequately increase the level of safety at the site. Locate the groundwater monitoring wells that were installed around the former plant and survey them for horizontal location and vertical elevation to determine the local direction of groundwater flow. The wells and surface waters should be sampled to determine surface and subsurface water quality condition. Groundwater, surface water and soil samples have been taken. None exceeded state action levels.

Diesel Fueling Area (SPMOT-15). During FY96, interim remedial actions were performed to remove the fuel-contaminated soil and the free product. Groundwater samples collected in FY98 confirmed that there was no further contamination. Contaminated soil samples found at two locations were still above the state action levels. A Comprehensive Site Assessment (CSA) recommending no further action was submitted for state approval during FY00. During FY01, comments were received from NCDENR requiring a one-year long quarterly monitoring program. This program was started in FY01 and was completed during FY02. Based on sampling data, no further action was approved by NCDENR.

IRP Cleanup Exit Strategy: All sites at MOTSU are RIP/RC. Groundwater monitoring is currently ongoing at one site (SPMOT-02), which will continue until concentrations in groundwater are below NCDENR standards.

Previous Studies

1977

- Environmental Assessment, Sunny Point Military Ocean Terminal, Southport, NC, July 1976 - May 1977, USAEHA, 1977

1978

- Wastewater Engineering Survey No. 32-61-0105-79, Military Ocean Terminal, Sunny Point, Southport, NC, 30 October - 3 November 1978, USAEHA, 1978

1980

- Installation Assessment of Military Ocean Terminal, Sunny Point, Southport, NC Report No. 180, July 1980, USATHAMA, 1980

1988

- Final Screening Site Inspection Report, Dow Chemical Plant, Kure Beach, North, Carolina, December 16, 1988, NUS Corporation Superfund Division, 1988
- Water Quality Engineering Consultation No. 31-24-0877-89, Potable Water Source Evaluation, Military Ocean Terminal, Sunny Point, Southport, NC, 25-29 July 1988, USAEHA, 1988
- Water Quality Engineering Consultation No. 32-24-0720-87, Maintenance Operations and Their Impact on Groundwater, Military Ocean Terminal, Sunny Point, Southport, NC, 12-15 May 1986, USAEHA, 1988
- Water Quality Engineering Special Study No. 24-035-72/73, Maintenance Dredging Monitoring, Military Ocean Terminal, Sunny Point, Southport, NC, 28 November - 2 December 1972, USAEHA, 1988

1990

- Environmental Program Review No. 37-26-7201-90, Military Ocean Terminal, Sunny Point, Southport, NC, 7-10 May 1990, USAEHA, 1990
- Preliminary Contaminate Report, December 14, 1990, US Army Corps of Engineers, Wilmington District, 1990
- Report No. CETHA-IR-CR-90173, Preliminary Assessment Report for Military Ocean Terminal Sunny Point, November 5, 1990, Weston (Roy F. Weston), 1990

1991

- Geohydrologic Study No. 38-26-KA99-91, Military Ocean Terminal, Sunny Point, Southport, NC, 12-23 August 1991, USAEHA, 1991

1993

- Geohydrologic Study No. 38-26-KP67-93, Military Ocean Terminal, Sunny Point, Southport, NC, 4-15 November and 1-6 December 1992, USAEHA, 1993
- Groundwater Quality Consultation No. 38-26-KV56-93, Military Ocean Terminal, Sunny Point, Southport, NC, 2-4 March and 3-6 June 1993, USAEHA, 1993
- Hazardous Waste Study No. 37-61-JW20-93, Military Ocean Terminal, Sunny Point, Southport, NC, 3-9 November 1992, USAEHA, 1993
- Mobilization Environmental Evaluation No. 32-24-H635-92, Military Ocean Terminal, Sunny Point, Southport, NC, 22-25 June 1992, USAEHA, 1993

1993 (cont.)

- Wastewater Management Consultation No. 32-61-HZ50-93, Military Ocean Terminal, Sunny Point, Southport, NC, 3-9 November 1992, USAEHA, 1993

2004

- Final Corrective Action Plan Report, Locomotive Repair Shop, Military Ocean Terminal, Sunny Point, Southport, NC , Savannah District, USACE, 2004

MILITARY OCEAN TERMINAL SUNNY POINT

Installation Restoration Program Site Description

SPMOT-02
INSTALLATION STORM DRAINS (SITE 2)

SITE DESCRIPTION

SPMOT-02 is a storm drain located next to the railroad tracks outside of Building S-14 in the main administrative area of the terminal. The track area was used formerly as a washrack for cleaning locomotives with runoff into the drainage ditch. Soil contamination consists of POL products and groundwater contamination consists of two VOCs and one SVOC. Prior to 1990, the locomotives were cleaned with solvents on the tracks. The ground is stained black around the tracks and in the nearby drainage ditch. SPMOT-16 has been combined with SPMOT-02.

The Corrective Action Plan was approved by state regulators. Remediation/removal of soil at SPMOT-02 was completed in 2004. Removed soil was land farmed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS: POL, Solvents

MEDIA OF CONCERN: Soil
Groundwater

PHASES	Start	End
PA	198101	198108
SI	198101	198108
RI/FS	199210	200111
RD	200204	200406
RA(C)	200408	200409
RA(O)	200409	200709

RIP: 200409
RC: 200709

CLEANUP STRATEGY

Monitored natural attenuation (MNA) of groundwater to concentrations below NCDENR 2L standards. Groundwater samples will be collected quarterly until four consecutive samples are below NCDENR standards. MNA is expected to continue until September, 2007

IRP No Further Action Sites Summary

AEDB-R#	Site Title	Documentation/Reason for NFA	NFA Date
SPMOT-01	DEMOLITION SITES 300M SW S RD (SITE 21)	PA/SI Study Completed. No Contamination Found.	198108
SPMOT-03	LANDFILL 2 DISPOSAL AREA (SITE 15)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-04	LF 8 DISPOSAL AREA-KURE BEACH (SITE 32)	Study Completed. No Cleanup Required. No Contamination Found	199310
SPMOT-05	DEMOLISHED DOW PLANT (SITE 30)	Study Completed. No Cleanup Required. No Contamination Found	199710
SPMOT-06	DIKE 2 AREA SALT WATER PLUME (SITE 19)	Site Addressed by the Dredge Management Program at MOTSU	198712
SPMOT-07	DIKE 4 AREA LANDFILL 4 (SITES 15 & 19)	Study Completed. No Cleanup Required. No Contamination Found	198912
SPMOT-08	LANDFILL 6 & 7 DISPOSAL AREA (SITE 27)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-09	SMALL POND LANDFILL 5 (SITE 15)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-10	BLDG 22 PCB STG (SITE 12)	All Required Cleanup(s) Completed	199101
SPMOT-11	LANDFILL 1 DISPOSAL AREA (SITE15)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-12	LANDFILL 3 DISPOSAL AREA (SITE 15)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-13	DIKE 1 AREA (SITE 19)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-14	DIKE 3 AREA (SITE 19)	Study Completed. No Cleanup Required. No Contamination Found	198108
SPMOT-15	DIESEL FUELING AREA (SITE 33)	All Required Cleanup(s) Completed. State of NC granted NFA 200402	200312
SPMOT-16	LOCO REPAIR BLDG, S-14 (SITE 1)	This site is being funded and remediated in combination of SPMOT-02.	200306
SPMOT-17	FIRE TRAINING AREA (SITE 13)	Study Completed. No Cleanup Required.	199712
SPMOT-18	LUMBER YARD MAINT BLDG S-273 (SITE 22)	All Required Cleanup(s) Completed	200003

Initiation of IRP: 198007

Past Phase Completion Milestones:

1981
PA/SI and NFA - 8 sites (SPMOT-01, 03, 07-09, 12-14), Aug

1984
RI/FS - SPMOT-06, Dec

1985
RD - Design for Groundwater Treatment (GWT) (SPMOT-06), Dec

1987
RA - Begin construction of GWT (SPMOT-06), Jan
RA - Completed construction of GWT (SPMOT-06), Dec

1990
RI/FS - SPMOT-10, Jan
RD - SPMOT-10, Jun

1991
RA - SPMOT-10, Jan

1992
RI/FS - Began 7 sites (SPMOT-02, 04, 05, 15, 18), Oct

1993
RI/FS - SPMOT-04, Oct

1996
IRA - SPMOT-15, Apr

1997
RI/FS - SPMOT-05, Oct
RI/FS - SPMOT-18, Nov
RI/FS - SPMOT-17, Dec

1998
RI/FS - SPMOT-15, Aug
RD - SPMOT-18, May
RD - SPMOT-15, Oct
RA - SPMOT-15, Dec

1999
RA - SPMOT-18, Mar

2000
RD - SPMOT-02 & SPMOT-16, May

2002
RA - SPMOT-15, Aug
RI/FS - SPMOT-02 & SPMOT-16, Nov

2004
LTM - SPMOT-15, Feb
RA - SPMOT-02 & SPMOT-16, Aug

Projected ROD/DD Approval Dates: None

Projected Construction Completion: 2004

Schedule for Next Five-Year Review: No 5-year reviews scheduled.

Completion Date of IRP (including LTM phase): 2007

MILITARY OCEAN TERMINAL - SUNNY POINT
SCHEDULE CHART

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
SPMOT-02	RA(O)									

Prior Years Funding:

Funding up through FY04: $1,646K

Year	Site Information	Expenditures	FY Total
FY05		$0K	**$07K**

Total Funding Up to FY05: $1,646K

Note: No IRP funds received in FY80-94, 96, 00, 01, 03, 05

Current Year Funds:

Year	Site Information	Expenditures	FY Total
FY06	SPMOT-02 RA(O)	$17K	**$17K**

Total Funding Up to FY06: $17K

Total Future Requirements: **$17K**

Total IRP Program Costs: **$1,680K**

Community Involvement

During FY97, MOTSU reviewed the requirements and potential for the establishment of a Restoration Advisory Board (RAB).

Efforts Taken To Determine Interest

MOTSU conducted the following to determine potential interest in establishing a RAB:

(1) A review of the type and quantity of contaminants was made. This included assessing the site locations and the possibility of off-site contamination.

(2) A study was done to determine the population density surrounding the installation.

Results

(1) It was determined that there was no possibility of off-site contamination.

(2) The installation is remotely located form major population centers. The nearest town, Southport, is seven miles away.

Conclusions

Based on the results of MOTSU's efforts to determine interest in forming a RAB, the installation commander determined that there was no reason to establish a RAB at this time.

Follow-up Procedures

MOTSU is committed to involving the public in its restoration program and recognizes that interest in restoration activities may develop. MOTSU will monitor community interest on a periodic basis and establish a RAB if sufficient interest is found.